UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,889	07/23/2003	Angus George Dalgleish	37945-0054	6757

26633 7590 03/15/2006

HELLER EHRMAN WHITE & MCAULIFFE LLP
1717 RHODE ISLAND AVE, NW
WASHINGTON, DC 20036-3001

EXAMINER	
HUMPHREY, DAVID HAROLD	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,889	DALGLEISH ET AL.	
	Examiner	Art Unit	
	David Humphrey	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/12/04; 11/22/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-18 are pending.

Claims 1-18 are examined on the merits.

Claim objections

2. Claim 10 appears to be redundant and does not further limit the claim upon which is depends, claim 9.

Claim 18 is objected to because of the following informalities: Claim 18 is a product claim and the claim upon which it depends is a method claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112, second paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. §112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10, and 12-18, are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite for the recitation of tumor associated glycoprotein "related to" sialyated Tn antigen. It is not clear whether the glycoprotein is structurally, functionally, or evolutionarily related, for example, to sialyated Tn antigen. Clarification and/or correction are required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 11 is rejected under 35 U.S.C. §102(b) as being anticipated by Dalgleish et al. (WO 00/33869, published June 15, 2000).

The claims are drawn to an allogeneic immunotherapy vaccine for the treatment of prostate cancer in a patient comprising an adjuvant, a first allogeneic normal prostate cell line, cells from a second allogeneic cell line obtained from a primary cancer biopsy, and cells from a third allogeneic cell line obtained from a metastasis of prostate cancer.

WO '869 teaches a vaccine using immortalized normal, non-malignant cells from the prostate as the basis of an allogeneic cell cancer vaccine for prostate cancer, see Abstract, lines 14-17 and 20-23. '869 further teaches combining one or more immortalized normal cell line or lines with one, two or three different cell lines derived from primary or metastatic cancer biopsies, see the bridging sentence between pages 4 and 5.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dalgleish et al. (WO 00/33869, published June 15, 2000) as evidenced by Dalgleish et al. (WO 00/33870) and American Type Cell Culture Catalog (ATCC) in view of Brenner PC et al. (Journal of Urology 153(5): 1575-1579, 1995; cited in Applicants' IDS), Maitland NJ et al. (Radiation Research 155: 133-142, 2001; cited in Applicants' IDS), Thraves P. (WO 01/75073, published October 11, 2001), and Corbel MJ (Dev. Biol. Stand. 87:113-124, 1996; abstract only enclosed).

The claims are drawn to an allogeneic immunotherapy vaccine for the treatment of prostate cancer in a patient comprising an adjuvant, a first allogeneic normal prostate cell line, cells from a second allogeneic cell line obtained from a primary cancer biopsy, and cells from a third allogeneic cell line obtained from a metastasis of prostate cancer. The second allogeneic cell line exhibits a tumor associated glycoprotein related to sialyated Tn antigen. Claims 2-4 recite various adjuvants. Claim 5 provides the limitation that the third allogeneic cell line is derived from a prostate cancer that has metastasized to one of the lymph nodes, bone, brain, and liver. Claim 6 is directed to a vaccine

wherein the first cell line is OnyCap-23, the second cell line is P4E6, and the third cells line is LnCaP. Claims 7-10 are directed to vaccines composed of at least 2 cell lines derived from primary prostate cancer biopsies. Claim 11 is drawn to a vaccine containing the same elements as the prior vaccine wherein the third allogeneic cell line is an immortalized line obtained from a prostate cancer biopsy. Claims 12-15 recite the steps of preparing and storing the vaccine. Claims 16 and 17 are drawn to methods of treating prostate cancer by administering the vaccine. For the purposes of examination, claim 18 is interpreted to be a method wherein the first allogeneic cell line of the immunotherapy vaccine is OnyCap-23.

WO 00/33869 ('869) teaches a vaccine using immortalized normal, non-malignant cells from the prostate as the basis of an allogeneic cell cancer vaccine for prostate cancer, see Abstract, lines 14-17 and 20-23. '869 further teaches combining one or more immortalized normal cell line or lines with one, two or three different cell lines derived from primary or metastatic cancer biopsies, see the bridging sentence between pages 4 and 5. '869 teaches the use of an adjuvant such as bacilli Calmette-Guerin, Mycobacterium vaccae, Tetanus toxoid, Diphtheria toxoid, Bordetella Pertussis, interleukin 2, interleukin 12, interleukin 4, interleukin 7, Complete Freund's Adjuvant, and Incomplete Freund's Adjuvant, see page 5, paragraph beginning "A further embodiment", lines 1-4. '869 teaches an allogeneic vaccine for the treatment of prostate cancer comprising a first cell line from normal tissue, a second cell line from a primary tumor, and a third cell line from another tumor tissue, see Example 1,

pages 5 and 6. '869 teaches a vaccine wherein the third allogenic cell line is derived from a prostate cancer that has metastasized to the lymph nodes, cell line LnCaP, see page 6; as evidenced by ATCC product description of number CRL-1740, see attached ATCC catalog printout. '869 also teaches a vaccine wherein comprising cells from at least two cell lines that have metastasized to one or more tissues, the LnCaP cell line mentioned above and a Du145 cell line which is a prostate cancer cell line from a lesion in the brain of a patient, as evidenced by ATCC product description of HTB-81, see attached catalog printout. '869 further teaches a vaccine comprising cells from at least 2 cell lines that have been derived from primary prostate cancer biopsies, NIH1519-CPTX, NIH1532-CP2TX, NIH1535-CP1TX, and CA-HPV-10, see page 13, claim 6; as evidenced by WO document '870, see page 5, Table 1, Group A. '869 teaches the irradiation at 50-300 Gy of the allogeneic cells to ensure that the cells are replication incompetent, see Abstract, last sentence. '869 additionally teaches a vaccine comprising a cryoprotectant comprising at least one of 10-30% v/v aqueous glycerol, 5-20% v/v dimethyl sulphoxide and 5-20% w/v human serum albumin, see page 5, paragraph beginning "The cell lines and combination...", lines 3-5. '869 further teaches a method of treatment of prostate cancer by administering the vaccine of claim 1 to a patient, see page 6, "Vaccination" section. '869 teaches a method of treating a prostate cancer that has metastasized to a tissue by administering a vaccine wherein the third allogeneic cell line of the vaccine is derived from a prostate cancer that has metastasized to the selected tissue by administering either LnCaP which is a cell line derived

from a prostate cancer that has metastasized to lymph node or Du145 which is a cell line derived from a prostate cancer that has metastasized to the brain, see page 6, Vaccination schedules.

'869 does not teach a vaccine wherein the cells of the second allogeneic cell line exhibit tumor associated glycoprotein related to sialyted Tn antigen. '869 also does not teach a vaccine wherein the first allogeneic cell line is OnyCap-23, and the second cell line is P4E6. '869 also does not teach a vaccine wherein the adjuvant comprised inactivated Myocbaterium vaccae bacilli or inactivated bacilli Calmette-Guerin. These deficiencies are made up for by the teachings of Brenner et al., Maitland et al., Thraves et al., and Corbel.

Brenner et al. teach the use of tumor associated glycoprotein (TAG-72) related to sialyted Tn antigen can be used to distinguish between primary prostate cancer cells and metastatic prostate cancer cells, see Abstract, lines 20-23.

It would have been prima facie obvious to use a second cell line from a primary prostate cancer biopsy that exhibits tumor associated glycoprotein related to sialyted Tn antigen since Brenner et al. teach that antibodies which recognize tumor associated glycoprotein related to sialyted Tn antigen can be used to distinguish between primary prostate cancer cells and those obtained from lymph node and bone metastasis from prostate cancer, see Abstract, lines 20-23. One of ordinary skill in the art would have been motivated with a reasonable expectation of success to use a cell line which expresses tumor associated glycoprotein related to sialyted Tn antigen since Brenner et al. teach

that antibodies which recognize tumor associated glycoprotein related to sialyted Tn antigen recognized 21 of 25 specimens of primary prostatic carcinomas but only 4 of 24 pelvic lymph nodes metastases had significant tumor associated glycoprotein related to sialyted Tn antigen staining.

Maitland NJ et al. teach an immortalized prostate cancer cell line, P4E6, that has properties that are similar to those of early prostate cancer cells and retains expression of many prostate-associated antigens such as prostate specific antigen (PSA), see Abstract, last sentence.

Thraves P et al. (WO 01/75073; published October 11, 2001) et al. teach a clone of PNT-2 cells, OnyCap23, that has been established and characterized as being prostate epithelial cell line, see page 4, lines 1-3. Thraves et al. also teach that the cell line can be used in a formulation for a vaccine for the treatment of prostate cancer with or without a vaccine adjuvant, see page 4, third section, lines 1-6.

It would have been prima facie obvious to use the cell lines of Maitland and Thraves for the vaccine of '869 since Maitland et al. teach that unlike other cancers, models available to study human prostate cancer in vitro are severely limited and that the currently available cell lines are at least 5 years old and the major cells lines are almost 20 years old, see page 133, left column, Introduction, lines 4-10. Maitland et al. teach that cell line P4E6 retains the prostatic gene expression of the original tissue and immortalized P4E6 cells were able to form discrete structures and provide evidence for retention of differentiated cell function, see page 138, right column, lines 10 and 11, and lines 23-26. Thraves

et al. also teach that it has been historically difficult to raise and maintain immortalized prostate cell lines in culture and that for 15-20 years the field of in vitro experimentation in prostate cancer has relied upon three cell lines derived from metastatic sites. Thraves et al. further teach two cell clones derived from normal prostate epithelial cells (PNT-2), OnyCap1 and OnyCap 23 that have been extensively characterized as being prostate epithelial in origin. One would have been motivated with a reasonable expectation of success to use the cell lines of Maitland et al. and Thraves et al. in a vaccine since Thraves et al. teach an allogeneic vaccine in combination with an adjuvant that utilizes normal prostate epithelial cells, OnyCap23 cell line, as well as combining OnyCap23 with other prostate cell lines available from ATCC.

Corbel MJ teaches that killed whole cell bacterial vaccines generally show a high degree of stability of potency, see Abstract, lines 2-5).

It would have been prima facie obvious to utilize heat inactivated Mycobacterium vaccae bacilli and bacilli Calmette-Guerin (BCG) as adjuvants in the vaccine of '869 since Corbel MJ teaches the stability of heat inactivated bacterial vaccines. One would have been motivated with a reasonable expectation of success since Corbel teaches that live attenuated vaccines such as BCG lose potency through loss of viability when exposed to adverse conditions, see Abstract, lines 5-7.

Double patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 2, 5, 7, and 9-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 6,972,128 (Dalgleish et al.) in view of Brenner et al. (Journal of Urology 153(5): 1575-1579, 1995; cited in Applicants' IDS).

The claims are drawn to an allogeneic immunotherapy vaccine for the treatment of prostate cancer in a patient comprising an adjuvant, a first allogeneic normal prostate cell line, cells from a second allogeneic cell line obtained from a primary cancer biopsy, and cells from a third allogeneic cell line obtained from a metastasis of prostate cancer. The second allogeneic cell line

exhibits a tumor associated glycoprotein related to sialyated Tn antigen. Claim 2 recites various adjuvants. Claim 5 provides the limitation that the third allogeneic cell line is derived from a prostate cancer that has metastasized to one of the lymph nodes, bone, brain, and liver. Claims 7, 9, and 10 are directed to vaccines composed of at least 2 cell lines derived from primary prostate cancer biopsies. Claim 11 is drawn to a vaccine containing the same elements as the prior vaccine wherein the third allogeneic cell line is an immortalized line obtained from a prostate cancer biopsy.

Claims 1-4 of U.S. Patent 6,972,128 recite an allogeneic immunogenic agent comprising a normal prostate human cell line, a primary prostate human cancer cell line, and a metastasized prostate cancer cell line. The claims further recite the use of an adjuvant selected from the group of bacilli Calmette-Guerin, M. Vaccae, Tetanus toxoid, Diptheria toxoid, Bordetella Pertussis, interleukin 2, interleukin 12, interleukin 4, interleukin 7, Complete Freund's Adjuvant, and Incomplete Freund's Adjuvant. The specific cell line species, PNT2, NIH-1542, and LnCaP, of the patent anticipate the genus claims of the application which are directed to a normal prostate cell line, a cell line obtained from a primary prostate cancer biopsy, and cells from a third allogeneic cell line obtained from a metastasis of prostate cancer, respectively. Patent '128 does not teach a vaccine wherein the second cell line exhibits a tumor associated glycoprotein related to Tn antigen. This deficiency is made up for by the teachings of Brenner et al.

Brenner et al. teach the use of tumor associated glycoprotein (TAG-72) related to sialyted Tn antigen can be used to distinguish between primary prostate cancer cells and metastatic prostate cancer cells, see Abstract, lines 20-23.

It would have been prima facie obvious to use a second cell line from a primary prostate cancer biopsy that exhibits tumor associated glycoprotein related to sialyted Tn antigen since Brenner et al. teach that antibodies which recognize tumor associated glycoprotein related to sialyted Tn antigen can be used to distinguish between primary prostate cancer cells and those obtained from lymph node and bone metastasis from prostate cancer, see Abstract, lines 20-23. One of ordinary skill in the art would have been motivated to with a reasonable expectation of success to use a cell line which expresses tumor associated glycoprotein related to sialyted Tn antigen since Brenner et al. teach that antibodies which recognize tumor associated glycoprotein related to sialyted Tn antigen recognized 21 of 25 specimens of primary prostatic carcinomas but only 4 of 24 pelvic lymph nodes metastases had significant tumor associated glycoprotein related to sialyted Tn antigen staining.

Thus, the claims of the instant application drawn to a vaccine are narrower in scope and encompassed by the claims of the patent drawn to an immunogenic agent. In addition, while the patent does not specifically teach treatment of prostate cancer, the immunogenic agent is an allogeneic cell line, LnCap, which is derived from prostate cancer and would therefore be obvious.

11. Claims 1, 2, 5, 7, and 9-11 are directed to an invention not patentably distinct from claims 1-4 of commonly assigned U.S. Patent 6,972,128. See the obvious type double patenting rejection above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent 6,972,128, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Conclusion

12. No claim is allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Humphrey whose telephone number is (571) 272-5544. The examiner can normally be reached on Mon-Fri 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER

David Humphrey, Ph.D.

March 3, 2006